

Installation Guide

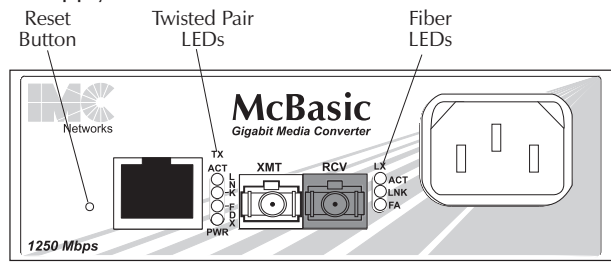
McBasic Gigabit™

by IMC Networks

About McBasic Gigabit

McBasic Gigabit™ is a low-cost, preconfigured, IEEE 802.3 single-conversion media converter that converts between 1000Base-TX twisted pair and 1000Base-SX multi-mode or 1000Base-LX single-mode fiber. It is available with one RJ-45 connector for the twisted pair port and an SC connector for the fiber port.

McBasic Gigabit is a 1U high, stand-alone unit that includes diagnostic LEDs for each port and a universal (100/240 VAC) power supply.



McBasic Gigabit, Front View

Installing McBasic Gigabit

McBasic Gigabit comes ready to install. The only adjustments that may need to be made come after installation.

To install McBasic Gigabit, first make sure that the unit is placed on a suitable flat surface. Attach the cables between the McBasic Gigabit and each device that will be interconnected, then plug the unit into a reliable, filtered power source.

Configuring McBasic Gigabit

Once installed, McBasic Gigabit can be configured for the following features by the end user:

- Duplex Mode (Default = OFF, Full-Duplex)
- Master/Slave Mode (Default = ON, Master Mode)
- FiberAlert (Default = OFF)

QUICK START

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DIP SWITCH SETTINGS

McBasic Gigabit features an 8-position DIP switch for configuring the unit. This switch is accessed through a cut-out in the bottom of the unit.

The following table provides simplified definitions of the function of each switch. More detailed information follows.

S1	OFF/ON	FUNCTION
1	☐	FDX/HDX
2	☐	SLV/MSTR
3	☐	RESERVED
4	☐	FA
5	☐	RESERVED
6	☐	RESERVED
7	☐	RESERVED
8	☐	RESERVED

SWITCH	FUNCTION	DEFAULT
1	Duplex Mode (ON: Half-Duplex, OFF: Full-Duplex)	OFF
2	Master/Slave Mode (ON: Master, OFF: Slave)	ON
4	FiberAlert	OFF
3, 5-8	Factory Use Only — DO NOT CHANGE	N/A

DUPLEX MODE

The Duplex mode settings of the McBasic Gigabit converter are used with Auto-Negotiation. The default Duplex mode for McBasic Gigabit is Full-Duplex. In this mode, Full-Duplex is advertised during Auto-Negotiation. To make the unit operate in Half-Duplex, simply move **DIP switch 1** from the **OFF** to the **ON** position. This will allow only Half-Duplex to be advertised during Auto-Negotiation. The Auto-Negotiation takes place on the twisted-pair interface only. When the twisted-pair interface is resolved, the configuration will be encoded into the fiber side. No Auto-Negotiation takes place on the fiber side. As a result, it is usually best to disable Auto-Negotiation on the remote fiber end. Since most gigabit networks run at Full-Duplex, it is recommended to set the remote fiber end to Full-Duplex.

MASTER/SLAVE MODE

This feature determines which clock will be used between the McBasic Gigabit and the device it is connected to (a switch, NIC, or another McBasic Gigabit, etc.). Master mode is the default setting, where McBasic Gigabit's clock is used. To change this to the Slave setting, move **DIP switch 2** to the **OFF** position. McBasic Gigabit will then receive and use the clock of the other connected device. The Master/Slave mode is only valid for the twisted pair link.

RESET BUTTON OPERATION

If your unit is running and you change either the Duplex Setting or Master/Slave mode, you will need to reset your unit before these changes take effect. The Reset button located on the front faceplate can accomplish this. To reset the unit, take a slender, non-conductive object, about the width of a paper clip, insert it into the hole in the chassis, and press the Reset button inside. Please observe proper ESD procedures when resetting your chassis. Note that power cycling the unit (i.e. removing the power cord and then reconnecting it) will also reset McBasic Gigabit.

Negotiation and McBasic Gigabit

McBasic Gigabit will negotiate between Master and Slave mode. To avoid conflicts with devices connected to McBasic Gigabit, it senses which mode is appropriate and will then choose that mode. McBasic Gigabit also negotiates between Half- and Full-duplex. Typically, when McBasic Gigabit is connected to a NIC or switch, it functions as a Master, as the NIC and switch auto-negotiate and determine which mode will not cause conflict. The *McBasic Gigabit* should drop down to Slave mode when connected to a switch or other multiport device. When connected to another McBasic Gigabit, there is a period of time where, while negotiation is taking place, errors may be seen. After a short period of time, the device returns to normal operation.

About FiberAlert

FiberAlert is an advanced troubleshooting features that can help you locate "silent failures" on your network. However, it is vital that you understand exactly how *FiberAlert* works, and how they will react in your network configuration, before attempting to install the enclosed module(s).



Installing modules without understanding the effects of *FiberAlert* can cause perfectly functioning units to appear flawed or even dead.

If you are unfamiliar with *FiberAlert*, IMC Networks strongly encourages you to read the following information. Contact IMC Networks technical support at (800) 624-1070 (U.S. and Canada), +32-16-550880 (Europe) or techsupport@imcnetworks.com for more information and assistance.

ABOUT LINK INTEGRITY

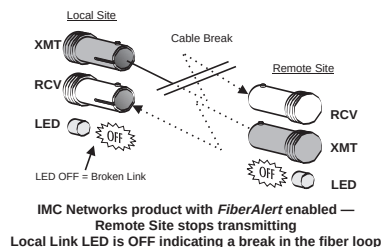
During normal operation, link integrity pulses are transmitted by all point-to-point Ethernet devices. When an IMC Networks media converter receives valid link pulses, it knows that the device to which it is connected is up and sending pulses, and that the copper or fiber cable coming from that device is intact. The appropriate "LINK" LED is lit to indicate this. The IMC Networks media converter also sends out link pulses from its copper and fiber transmitters, but normally has no way of knowing whether the cable to the other device is intact and the link pulses are reaching the other end. *FiberAlert* allows this information to be obtained from the fiber, even when physical access to a remote device (and its link integrity LED) is not available.

WHAT IS FIBER ALERT?

FiberAlert lets you know when a fault occurs on your fiber loop by stopping data transmissions and affecting fiber LEDs on both sides of your network. If a media converter is not receiving a fiber link, *FiberAlert* disables the media converter's fiber transmitter, thus mirroring the link status of the opposite end of the fiber. Both fiber link LEDs on either end of the link

should extinguish, alerting you to the fault.

Using *FiberAlert*, a local site administrator is notified of a fault and can quickly determine where a cable fault is located without having to go to the remote site.



For more information on *FiberAlert*, please visit the IMC Networks Web site at www.imcnetworks.com/to-fa.htm. If you are unsure of how best to implement this features in your configuration, please contact IMC Networks technical support via phone at (800) 624-1070 (U.S. and Canada), +32-16-550880 (Europe) or via e-mail at techsupport@imcnetworks.com.

Installation Troubleshooting

- During installation, first test your fiber and twisted pair connections with *FiberAlert* disabled. Then enable *FiberAlert*, if desired, just before final installation. This will reduce the feature's interference with testing.
- *FiberAlert* should only be enabled on one side of a media conversion. Enabling it on both sides would keep both transmitters off indefinitely.
- To test *McBasic Gigabit* by itself, you must have an appropriate fiber patch cable. First, connect *McBasic Gigabit* to the twisted pair device with a twisted pair cable. Next, loop a single strand of fiber from the transmit port to the receive port of your media converter. Finally, verify that you have both twisted pair and fiber link on your media converter.
- Make sure that you are using the appropriate twisted pair cable (i.e. crossover or pass-through). Gigabit Ethernet requires Cat-5 cabling and patch cords.

LED Indicators

McBasic Gigabit features several diagnostic LEDs. They are:

TWISTED PAIR PORT

ACT	Glows yellow when data is detected on the port.
LNK	Glows green when a twisted pair <i>link</i> is established.
FDX	Glows green when operating in <i>Full-Duplex</i> mode.
PWR	Glows green when unit has <i>power</i> .

FIBER PORT

ACT	Glow yellow when data is detected on the port.
LNK	Glow green when a fiber <i>link</i> is established.
FA	Glow green when <i>FiberAlert</i> is enabled.

General Information

IMC NETWORKS TECHNICAL SUPPORT

TEL: (949) 465-3000; (800) 624-1070 (in the U.S and Canada);
+32-16-550880 (Europe)
FAX: (949) 465-3020
E-Mail: techsupport@imcnetworks.com
Web: www.imcnetworks.com

SPECIFICATIONS

Environmental

Operating Temperature: 32° - 104° F (0° - 40° C)
Storage Temperature: 0° - 160° F (-20° - 70° C)
Humidity: 5 - 95% (non-condensing)

Power

AC Input Load: 100/240V±10% ~ 50/60 Hz, 0.2/0.1A
Heat Generated: 50 BTU/hr.

Dimensions

1.50"H x 4.65"W x 4.43"D (3.8 cm x 11.8 cm x 11.3 cm)
1.3 lbs. (0.6 kg)

Fiber Optic Specifications

For fiber optic specifications, please visit our Web site at:
www.imcnetworks.com/fopower.htm

FIBER OPTIC CLEANING GUIDELINES

Fiber Optic transmitters and receivers are extremely susceptible to contamination by particles of dirt or dust, which can obstruct the optic path and cause performance degradation. Good system performance requires clean optics and connector ferrules.

- 1) Use fiber patch cords (or connectors, if you terminate your own fiber) only from a reputable supplier; low-quality components can cause many hard-to-diagnose problems in an installation.
- 2) Dust caps are installed at IMC Networks to ensure factory-clean optical devices. These protective caps should not be removed until the moment of connecting the fiber cable to the device. Assure that the fiber is properly terminated, polished and free of any dust or dirt, and that the location is as free from dust and dirt as possible.
- 3) Store spare caps in a dust-free environment such as a sealed plastic bag or box so that when reinstalled they do not introduce any contamination to the optics.

- 4) Should it be necessary to disconnect the fiber device, reinstall the protective dust caps.
- 5) If you suspect that the optics have been contaminated, alternate between blasting with clean, dry, compressed air and flushing with methanol to remove particles of dirt.

ELECTROSTATIC DISCHARGE PRECAUTIONS

Electrostatic discharge (ESD) can cause damage to your add-in modules. Always observe the following precautions when installing or handling an add-in module or any board assembly.

- 1) Do not remove unit from its protective packaging until you're ready to install it.
- 2) Wear an ESD wrist grounding strap before handling any module or component. If you do not have a wrist strap, maintain grounded contact with the system unit throughout any procedure requiring ESD protection.



WARNING! Integrated circuits and fiber optic components are extremely susceptible to electrostatic discharge damage. Do not handle these components directly unless you are a qualified service technician and use tools and techniques that conform to accepted industry practices.

- 3) Hold boards by the edges only; do not touch the electronic components or gold connectors.
- 4) After removal, always place the boards on a grounded, static-free surface, ESD pad or in a proper ESD bag. Do not slide the board over any surface.

WARRANTY

IMC Networks warrants to the original end-user purchaser that this product, EXCLUSIVE OF SOFTWARE, shall be free from defects in materials and workmanship under normal and proper use in accordance with IMC Networks' instructions and directions for a period of six (6) years after the original date of purchase. This warranty is subject to the limitations set forth below.

At its option, IMC Networks will repair or replace at no charge the product which proves to be defective within such warranty period. This limited warranty shall not apply if the IMC Networks product has been damaged by unreasonable use, accident, negligence, service or modification by anyone other than an authorized IMC Networks Service Technician or by any other causes unrelated to defective materials or workmanship. Any replaced or repaired products or parts carry a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

To receive in-warranty service, the defective product must be received at IMC Networks no later than the end of the warranty period. The product must be accompanied by proof of purchase, satisfactory to IMC Networks, denoting product serial number and purchase date, a written description of the defect and a Return Merchandise Authorization (RMA) number issued by IMC Networks. No products will be accepted by IMC Networks which do not have an RMA number. For an RMA number, contact IMC Networks at PHONE: (800) 624-1070 (in the U.S and Canada) or (949) 465-3000 or FAX: (949) 465-3020. The end-user shall return the defective product to IMC Networks, freight, customs and handling charges prepaid. End-user agrees to accept all liability for loss of or damages to the returned product during shipment. IMC Networks shall repair or replace the returned product, at its option, and return the repaired or new product to the end-user, freight prepaid, via method to be determined by IMC Networks.

IMC Networks shall not be liable for any costs of procurement of substitute goods, loss of profits, or any incidental, consequential, and/or special damages of any kind resulting

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FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B computing device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

The use of non-shielded I/O cables may not guarantee compliance with FCC RFI limits.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

SAFETY CERTIFICATIONS

- UL:** Listed to UL1950 and CSA 22.2, No. 950, Safety of Information Technology Equipment, Including Electrical Business Equipment.
- CE:** The products described herein comply with the Council Directive on Electromagnetic Compatibility (89/336/EEC) and the Council Directive on Electrical Equipment Designed for use within Certain Voltage Limits (73/23/EEC). Certified to EN 60950, Safety of Information Technology Equipment, Including Electrical Business Equipment. For further details, contact IMC Networks



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www.mediaconverter.com for a complete
overview of media conversions products available
from IMC Networks.



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Document Number 55-80910-00 A1

May 2002